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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,744	11/26/2003	Donald L. Yates	M4065.0530/P530-A	3947
24998	7590	03/17/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			LE, DUNG ANH	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2818	

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/721,744

Applicant(s)

YATES ET AL.

Examiner

DUNG A. LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 29-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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## DETAILED ACTION

### *Oath/Declaration*

The oath/declaration filed on 11/26/2003 is acceptable.

### *Information Disclosure Statement*

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 3/4/2004 and made of record .

The references cited on the PTOL 1449 form have been considered.

### *Drawings*

The drawings are objected to for the following reasons.

Figures 1 and 1A should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

The specification is objected to for the following reasons ;

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP § 606.01). Note that, the claims are directed to semiconductor device instead of to a method of making a semiconductor device.

For Page 2, [0006] , change "Fig. 2" to - - Fig. --

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### **Claim Rejections**

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 29-40 and 42 are rejected under 35 USC 102 (e) as being anticipated by Durcan et al. (6,750,069 B2).**

Durcan et al. teaches a magnetic random access memory cell, said memory cell comprising:

a first magnetic layer 79 (figs. 12-16) over a conductive layer 62, said first magnetic layer comprising a first plurality of magnetic multilayer films (71/73/75/77);  
a nonmagnetic tunnel barrier layer 80 over said first magnetic layer 79; and  
a second magnetic layer 89 over said nonmagnetic tunnel barrier layer 80, said second magnetic layer comprising a second plurality of magnetic multilayer films (81/82).

**Regarding claim 30**, wherein said first magnetic layer is a pinned layer. (col 5, line 51).

**Regarding claim 31**, wherein said pinned layer 79 comprises a plurality of layers to produce a ferromagnetic pinned layer (fig. 13).

**Regarding claim 32**, wherein said second magnetic layer is a sense layer. (col 6, line 45).

**Regarding claim 33**, wherein said sense layer 92 comprises a plurality of layers to produce a ferromagnetic sense layer. (col 6., lines 19-23)

**Regarding claim 34**, wherein said nonmagnetic tunnel barrier layer 80 comprises aluminum oxide. (col 6, line 6).

**Regarding claim 35**, wherein said aluminum oxide has a thickness of about 5 to 25 Angstroms. (col 6, line 6)

**Regarding claim 36**, wherein said nonmagnetic tunnel barrier layer 80 comprises a material selected from the group consisting of copper, titanium oxide, magnesium oxide, silicon oxide and aluminum nitride. (col 6, lines 10-15)

**Regarding claim 37**, wherein said conductive layer is selected from the group consisting of copper, aluminum, tungsten and gold. (col 5, lines 25- 30).

**Regarding claim 38**, wherein said first plurality of magnetic multilayer films comprises a first tantalum layer, a first nickel-iron layer, a manganese-iron layer, and a second nickel-iron layer. (col 5, lines 55-65)

**Regarding claim 39**, wherein said second plurality of magnetic multilayer films comprises a third nickel-iron layer, a tungsten nitrogen layer and a second tantalum layer. (col 6, lines 19-25).

**Regarding claim 40**, wherein said memory cell is coupled to at least one word line 93 (col 7, line 16).

**Regarding claim 42**, processor system comprising at least one a memory circuit, wherein said at least one a memory circuit comprises at least one memory cell (fig. 19).

**Independent claim 41**

**Claim 41 is rejected under 35 USC 102 (e) as being anticipated by Durcan et al. (6,750,069 B2).**

Durcan et al. teaches a memory circuit, said memory circuit comprising: a plurality of memory cells (figs. 16- 17), each memory cell comprising:

a first magnetic layer 79 (figs. 13-15) over a conductive layer 62, said first magnetic layer comprising a first plurality of magnetic multilayer films (71/73/75/77); a nonmagnetic tunnel barrier layer 80 over said first magnetic layer 79; and a second magnetic layer 89 over said nonmagnetic tunnel barrier layer 80, said second magnetic layer comprising a second plurality of magnetic multilayer films (81/83).

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.


A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Tuesday and Thursday 6:00am- 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUNG A. LE   
Primary Examiner  
Art Unit 2818